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P A T E N T COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

DE GREGORI, Antonella
Ing. Barzano' & Zanardo Milano
S.p.A.
Via Borgonuovo, 10
I-20121 Milan
ITALIE

Date of mailing (day/month/year) 20 September 2000 (20.09.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference Cal 82146	
International application No. PCT/EP99/08388	International filing date (day/month/year) 05 November 1999 (05.11.99)

1. The following indications appeared on record concerning:

☐ the applicant ☐ the inventor ☒ the agent ☐ the common representative

Name and Address

FRANCK, Peter
Uexküll & Stolberg
Beselerstrasse 4
D-22607 Hamburg
Germany

State of Nationality

State of Residence

Telephone No.

040 899 6540

Facsimile No.

040 89965488

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☒ the person ☐ the name ☐ the address ☐ the nationality ☐ the residence

Name and Address

DE GREGORI, Antonella
Ing. Barzano' & Zanardo Milano
S.p.A.
Via Borgonuovo, 10
I-20121 Milan
Italy

State of Nationality

State of Residence

Telephone No.

02 6554287

Facsimile No.

02 6598859

Teleprinter No.

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Sean Taylor

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing: 18 May 2000 (18.05.00)	
International application No.: PCT/EP99/08388	Applicant's or agent's file reference: P 52151
International filing date: 05 November 1999 (05.11.99)	Priority date: 06 November 1998 (06.11.98)
Applicant: RENZI, Fiorenzo et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International preliminary Examining Authority on:
23 March 2000 (23.03.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer:</p> <p>J. Zahra</p> <p>Telephone No.: (41-22) 338.83.38</p>
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PATENT COOPERATION TREATY

PCT

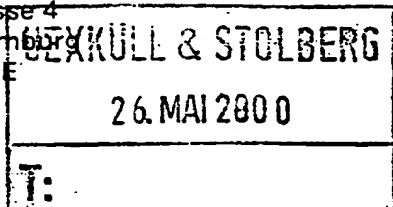
NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

FRANCK, Peter
Uexküll & Stolberg
Beselerstrasse 4
D-22607 Hamburg
ALLEMAGNE



Date of mailing (day/month/year) 18 May 2000 (18.05.00)		
Applicant's or agent's file reference P 52151		IMPORTANT NOTICE
International application No. PCT/EP99/08388	International filing date (day/month/year) 05 November 1999 (05.11.99)	Priority date (day/month/year) 06 November 1998 (06.11.98)
Applicant GREAT LAKES CHEMICAL (EUROPE) GMBH et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
JP,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
CA,EP,IN,ZA

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on
18 May 2000 (18.05.00) under No. WO 00/27794

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
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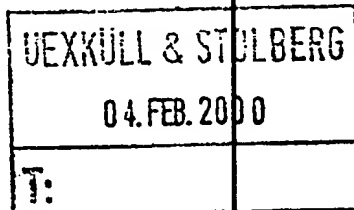
PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

UEXKÜLL & STOLBERG
Attn. Franck, Peter
Beselerstrasse 4
D-22607 Hamburg
GERMANY



NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference P 52151	Date of mailing (day/month/year) 02/02/2000
International application No. PCT/EP 99/08388	International filing date (day/month/year) 05/11/1999
Applicant GREAT LAKES CHEMICAL GMBH et al.	

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:
 The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland
 Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer John De Bruijn
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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P 52151	FOR FURTHER ACTION <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. PCT/EP 99/ 08388	International filing date (day/month/year) 05/11/1999	(Earliest) Priority Date (day/month/year) 06/11/1998
Applicant GREAT LAKES CHEMICAL GMBH et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

- ☐ as suggested by the applicant.
- ☐ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.
- ☐ None of the figures.

International Application No

PCT/EP 99/08388

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07C69/96 C07C68/06 C08F218/00 G02B1/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07C C08F G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 970 293 A (FIORENZO RENZI) 13 November 1990 (1990-11-13) cited in the application column 1, line 55 -column 2, line 68 column 3, line 24 - line 65 column 4, line 1 - line 14 column 5 -column 11; examples 1-7 column 15 -column 16; claims -----	1-26



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"Z" document member of the same patent family

Date of the actual completion of the international search

25 January 2000

Date of mailing of the international search report

02/02/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Kinzinger, J

Information on patent family members

International Application No

PCT/EP 99/08388

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4970293 A	13-11-1990	IT 1228546 B	20-06-1991
		AT 67510 T	15-10-1991
		AU 605601 B	17-01-1991
		AU 1869688 A	02-02-1989
		CA 1303779 A	16-06-1992
		DE 3864945 A	24-10-1991
		EP 0302537 A	08-02-1989
		GR 3002888 T	25-01-1993
		HK 90394 A	09-09-1994
		IE 60752 B	10-08-1994
		IN 171275 A	29-08-1992
		IN 171969 A	20-02-1993
		JP 1065107 A	10-03-1989
		JP 2840947 B	24-12-1998
		KR 9200191 B	10-01-1992
		PT 88159 A,B	30-06-1989
		SG 95894 G	28-10-1994

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

16 FEB. 2001

PCT

To:

DE GREGORI, Antonella et al.
ING. BARZANO & ZANARDO MILANO
S.p.A.
Via Borgonuovo 10
I-20121 Milan
ITALIE

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year)

14.02.01

Applicant's or agent's file reference

P 52151

82146

GL-12

IMPORTANT NOTIFICATION

International application No.

PCT/EP99/08388

International filing date (day/month/year)

05/11/1999

Priority date (day/month/year)

06/11/1998

Applicant

GREAT LAKES CHEMICAL (EUROPE) GMBH et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Roche, S


Tel. +49 89 2399-8031



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 52151		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP99/08388	International filing date (day/month/year) 05/11/1999	Priority date (day/month/year) 06/11/1998	
International Patent Classification (IPC) or national classification and IPC C07C69/96			
Applicant GREAT LAKES CHEMICAL (EUROPE) GMBH et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 7 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input checked="" type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 			
Date of submission of the demand 23/03/2000		Date of completion of this report 14.02.01	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer Kleidernigg, O Telephone No. +49 89 2399 2143	



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/08388

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

Description, pages:

1-4,6-21 as originally filed

5 as received on 30/10/2000 with letter of 27/10/2000

Claims, No.:

1-25 as received on 30/10/2000 with letter of 27/10/2000

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☒ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/08388

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-25
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-25
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-25
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

Section V

Novelty and Inventive step

The present application relates to a liquid composition which can be polymerized, by means of radical polymerization with low shrinkage, into organic glasses, comprising the product obtained from transesterification of a diallylcarbonate (A) with a mixture of one or more linear or branched aliphatic diols (B), containing from three to ten carbon atoms in the molecule with a linear or branched aliphatic polyol (C), containing from four to twenty carbon atoms and from three to six hydroxyl groups in the molecule, wherein the molar ratio $(A)/(B+C)$ ranges from 2.5/1 to 4/1 and the quantity of (C) in the mixture (B+C) ranges from 5% by weight to 20% by weight with respect to the total weight of said mixture (B+C) (claims 1-22), organic glasses (claim 23), processed organic glasses e.g. ophthalmic lenses (claim 24) and the use of the liquid composition for manufacturing optical lenses (claim 25).

The subject matter of the present application represents a selection over US-A-4 970 293 (D1) which is considered to represent the closest prior art, because the present application proposes a molar ratio $(A)/(B+C)$ ranges from 2.5/1 to 4/1 and a quantity of (C) in the mixture (B+C) ranges from 5% by weight to 20% by weight. In D1 a molar ratio $(A)/(B+C)$ from 3/1 to 12/1 and a quantity of (C) in the mixture (B+C) from 20 to 60% is disclosed (cf. clams 1-4). However, in D1 no explicit examples are given which fall within the scope of present claim 1 (cf. columns 5-11). Moreover, it is considered that presently claimed ranges are narrow with respect to D1 and the obtained products show improved properties with respect to D1.

Thus, the subject matter of present claims 1-25 is fulfilling the criteria of Article 33(2) PCT with respect to the available prior art.

The technical problem may be regarded as the provision of further organic glasses.

The solution is given in claim 1 and concerns the special selection of the molar ratio $(A)/(B+C)$ and the quantity of (C) in the mixture (B+C). This special selection yields organic glasses with a property profile ideal for the as ophthalmic lenses. The improved physico-chemical properties of the selection such as abrasion resistance and yellow

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP99/08388

index, as can be seen in table 1 of the present application (cf. page 18) are in detail not predictable for a person skilled in the art.

Thus, the subject matter of present claims 1-25 is fulfilling the requirements of Article 33(3) PCT with respect to the available prior art.

Section VII

The passage on page 11, lines 3-6 is infringing Rule 9.1 iv) PCT.

The present application is not fulfilling the criteria of Rule 11.9 a) PCT.

531 Rec'd PCT

01 MAY 2001

can be easily polymerized by means of radical polymerization with low shrinkage, into organic glasses having good optical and physico-mechanical properties, capable of overcoming the drawbacks of the known art described above.

5 The present invention therefore relates to a liquid composition which can be polymerized by means of radical polymerization with low shrinkage, into organic glasses, comprising the product obtained from the transesterification of a diallyl carbonate (A) with a mixture of one or
10 more linear or branched aliphatic diols (B), containing from three to ten carbon atoms in the molecule with a linear or branched aliphatic polyol (C), containing from four to twenty carbon atoms and from three to six hydroxyl groups in the molecule, wherein

15 ~~In the liquid composition of the present invention, the molar ratio $A/(B+C)$ ranges from 2/1 to 5/1 and the quantity of (C) in the mixture (B+C) is equal to or less than 25% by weight with respect to the total weight of the mixture (B+C).~~

20 ~~In the liquid composition of the present invention, the molar ratio $(A)/(B+C)$ preferably ranges from 2.5/1 to 4/1, and the quantity of (C) in the mixture (B+C) ranges from 5% by weight to 20% by weight with respect to the total weight of the mixture (B+C).~~

25 Diols (B) which can be used for the purposes of the

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CLAIMS

1. A liquid composition which can be polymerized, by means of radical polymerization with low shrinkage, into organic glasses, comprising the product obtained from the transesterification of a diallylcarbonate (A) with a mixture of one or more linear or branched aliphatic diols (B), containing from three to ten carbon atoms in the molecule with a linear or branched aliphatic polyol (C), containing from four to twenty carbon atoms and from three to six hydroxyl groups in the molecule,

~~2. The composition according to claim 1, wherein the molar ratio A/(B+C) ranges from 2/1 to 5/1 and the quantity of (C) in the mixture (B+C) is equal to or less than 25% by weight with respect to the total weight of said mixture (B+C).~~

~~3. The composition according to claim 2, wherein the molar ratio (A)/(B+C) ranges from 2.5/1 to 4/1 and the quantity of (C) in the mixture (B+C) ranges from 5% by weight to 20% by weight with respect to the total weight of said mixture (B+C).~~

2. The composition according to claim 1, ~~2 or 3~~, wherein the diols (B) are: diethylene glycol, triethylene glycol, tetraethylene glycol, 1,4-butanediol, 1,6-hexanediol, 1,3-propanediol, neopentylglycol, dipropylene-

neglycol, 2,2,4-trimethyl-1,3-pentanediol.

- 3~~8~~. The composition according to claim ²~~4~~, wherein the diols are diethylene glycol and neopentylglycol.
- 4~~8~~. The composition according to any of the previous
5 claims, wherein the polyols (C) are: pentaerythritol, trimethylolpropane, dipentaerythritol, ditrimethylolpropane, tris(hydroxyethyl)isocyanurate.
- 5~~7~~. The composition according to claim ⁹~~8~~, wherein the polyols are pentaerythritol and trimethylolpropane.
- 10 6~~8~~. The composition according to any of the previous claims, obtained starting from diallyl carbonate (A) and from the mixture (B+C) operating under transesterification conditions, at a temperature ranging from 80°C to 160°C, in the presence of a catalyst of
15 the alkaline type, and continuously eliminating the allyl alcohol which is formed as reaction by-product.
- 7~~8~~. The composition according to claim ⁶~~8~~, wherein the transesterification is carried out at a temperature ranging from 90°C to 130°C, and the catalyst of the
20 alkaline type is selected from: hydroxides, carbonates and alcoholates of alkaline metals, organic bases, basic ion-exchange resins.
- 8~~10~~. The composition according to claim ⁷~~8~~, wherein the catalyst of the alkaline type is selected from: sodium,
25 hydroxide, sodium carbonate, sodium methyllate.

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- 9~~12~~. The composition according to any of the claims from ~~8~~⁶
to ~~10~~⁸, wherein the catalyst is used in a quantity
equal to at least 1 ppm (parts per million by weight)
with respect to the sum of the weights of components
5 (B+C).
- 10~~12~~. The composition according to claim ~~11~~⁹, wherein the
catalyst is used in a quantity ranging from 0.01% to
0.3% by weight with respect to the sum of the weights
of components (B+C).
- 10~~13~~¹¹. The composition according to any of the claims from ~~9~~⁶
to ~~12~~¹⁰, wherein the transesterification reaction is
carried out at pressure values ranging from 60 mbar to
1030 mbar.
- 12~~14~~. The composition according to claim ~~13~~¹¹, wherein the
15 transesterification reaction is carried out at pres-
sure values ranging from 60 mbar to 500 mbar.
- 13~~15~~. The composition according to any of the claims from ~~10~~⁶
to ~~14~~¹², wherein the reaction times range from 0.5 hours
to 20 hours.
- 20~~16~~¹⁴. The composition according to claim ~~15~~¹³, wherein the re-
action times range from 0.5 hours to 3 hours.
- 15~~17~~. The composition according to any of the previous
claims, wherein one or more conventional additives are
present, such as oxidization, light and heat stabiliz-
25 ers, lubricants, dyes, pigments, UV-absorbers, IR-

absorbers, and the like, in a total quantity however not exceeding 1 part by weight for every 100 parts by weight of the compositions themselves.

¹⁶
~~18~~.

5 The composition according to any of the previous claims, wherein one or more polymerization initiators are present, which are soluble in the composition itself and are capable of generating free radicals within a temperature range of 30°C to 120°C.

¹⁷
~~19~~.

10 The composition according to claim ¹⁶~~18~~, wherein the polymerization initiators belong to the group of peroxides.

¹⁸
~~20~~.

15 The composition according to claim ¹⁷~~19~~, wherein the peroxides are: dicyclohexylperoxydicarbonate, diisopropylperoxydicarbonate, dibenzoylperoxide, di-s-butyl-peroxydicarbonate, s-butyl-cyclohexylperoxydicarbonate.

¹⁹
~~21~~.

The composition according to claim ¹⁶~~18~~, wherein the polymerization initiators are perketals.

²⁰
~~22~~.

20 The composition according to claim ¹⁹~~21~~, wherein the perketals are: 1,1-di-(t-butylperoxy)-cyclohexane, 1,1-di-(t-butylperoxy)-3,3,5-trimethyl-cyclohexane, 1,1-di-(t-amylperoxy)-cyclohexane, 1,1-di-(t-butylperoxy)-2-methyl-cyclohexane, 1,1-di-(t-amylperoxy)-2-methylcyclohexane.

²¹
~~23~~.

25 The composition according to any of the claims from ¹⁶~~18~~

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to ²⁰~~22~~, wherein the quantity of initiator used varies within a range of 1 to 6 parts by weight for every 100 parts by weight of said composition.

²²~~24~~. The composition according to any of the claims from ¹⁶~~18~~ to ²¹~~23~~, which are transformed into the relative organic glasses operating at a temperature ranging from 30°C to 120°C, with polymerization times which generally range from 1 hour to 100 hours.

²³~~25~~. Organic glasses obtained from the polymerization of the compositions according to any of the previous claims.

²⁴~~26~~. Ophthalmic lenses and solar filters, protective shields, sight windows, solar and photovoltaic collectors and panels, substrates for optical disks, panels for display, video terminals obtained from the processing of the organic glasses according to claim ²³~~25~~.

20

25

25. Use of a liquid composition which can be polymerized, by means of radical polymerization with low shrinkage, into organic glasses, comprising the product obtained from the transesterification of a diallylcarbonate (A) with a mixture of one or more linear or branched aliphatic diols (B), containing from three to ten carbon atoms in the molecule with a linear or branched aliphatic polyol (C), containing from four to twenty carbon atoms and from three to six hydroxyl groups in the molecule, wherein the molar ratio (A)/(B+C) ranges from 2.5/1 to 4/1 and the quantity of (C) in the mixture (B+C) ranges from 5% by weight to 20% by weight with respect to the total weight of said mixture (B+C), for manufacturing optical lenses.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P 52151	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 99/ 08388	International filing date (day/month/year) 05/11/1999	(Earliest) Priority Date (day/month/year) 06/11/1998
Applicant GREAT LAKES CHEMICAL GMBH et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/JP 99/08388

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07C69/96 C07C68/06 C08F218/00 G02B1/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07C C08F G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 970 293 A (FIORENZO RENZI) 13 November 1990 (1990-11-13) cited in the application column 1, line 55 -column 2, line 68 column 3, line 24 - line 65 column 4, line 1 - line 14 column 5 -column 11; examples 1-7 column 15 -column 16; claims -----	1-26

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

25 January 2000

Date of mailing of the international search report

02/02/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Kinzinger, J

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP99/08388

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4970293 A	13-11-1990	IT 1228546 B	20-06-1991
		AT 67510 T	15-10-1991
		AU 605601 B	17-01-1991
		AU 1869688 A	02-02-1989
		CA 1303779 A	16-06-1992
		DE 3864945 A	24-10-1991
		EP 0302537 A	08-02-1989
		GR 3002888 T	25-01-1993
		HK 90394 A	09-09-1994
		IE 60752 B	10-08-1994
		IN 171275 A	29-08-1992
		IN 171969 A	20-02-1993
		JP 1065107 A	10-03-1989
		JP 2840947 B	24-12-1998
		KR 9200191 B	10-01-1992
		PT 88159 A, B	30-06-1989
		SG 95894 G	28-10-1994

can be easily polymerized by means of radical polymerization with low shrinkage, into organic glasses having good optical and physico-mechanical properties, capable of overcoming the drawbacks of the known art described above.

5 The present invention therefore relates to a liquid composition which can be polymerized by means of radical polymerization with low shrinkage, into organic glasses, comprising the product obtained from the transesterification of a diallyl carbonate (A) with a mixture of one or
10 more linear or branched aliphatic diols (B), containing from three to ten carbon atoms in the molecule with a linear or branched aliphatic polyol (C), containing from four to twenty carbon atoms and from three to six hydroxyl groups in the molecule.

15 In the liquid composition of the present invention, the molar ratio $A/(B+C)$ ranges from 2/1 to 5/1 and the quantity of (C) in the mixture (B+C) is equal to or less than 25% by weight with respect to the total weight of the mixture (B+C).

20 In the liquid composition of the present invention, the molar ratio $(A)/(B+C)$ preferably ranges from 2.5/1 to 4/1, and the quantity of (C) in the mixture (B+C) ranges from 5% by weight to 20% by weight with respect to the total weight of the mixture (B+C).

25 Diols (B) which can be used for the purposes of the

CLAIMS

1. A liquid composition which can be polymerized, by means of radical polymerization with low shrinkage, into organic glasses, comprising the product obtained from the transesterification of a diallylcarbonate (A) with a mixture of one or more linear or branched aliphatic diols (B), containing from three to ten carbon atoms in the molecule with a linear or branched aliphatic polyol (C), containing from four to twenty carbon atoms and from three to six hydroxyl groups in the molecule.
2. The composition according to claim 1, wherein the molar ratio $A/(B+C)$ ranges from 2/1 to 5/1 and the quantity of (C) in the mixture (B+C) is equal to or less than 25% by weight with respect to the total weight of said mixture (B+C).
3. The composition according to claim 2, wherein the molar ratio $(A)/(B+C)$ ranges from 2.5/1 to 4/1 and the quantity of (C) in the mixture (B+C) ranges from 5% by weight to 20% by weight with respect to the total weight of said mixture (B+C).
4. The composition according to claim 1, 2 or 3, wherein the diols (B) are: diethylene glycol, triethylene glycol, tetraethylene glycol, 1,4-butanediol, 1,6-hexanediol, 1,3-propanediol, neopentylglycol, dipropylene-

neglycol, 2,2,4-trimethyl-1,3-pentanediol.

5. The composition according to claim 4, wherein the diols are diethylene glycol and neopentylglycol.
6. The composition according to any of the previous
5 claims, wherein the polyols (C) are: pentaerythritol, trimethylolpropane, dipentaerythritol, ditrimethylolpropane, tris(hydroxyethyl)isocyanurate.
7. The composition according to claim 6, wherein the polyols are pentaerythritol and trimethylolpropane.
- 10 8. The composition according to any of the previous claims, obtained starting from diallyl carbonate (A) and from the mixture (B+C) operating under transesterification conditions, at a temperature ranging from 80°C to 160°C, in the presence of a catalyst of
15 the alkaline type, and continuously eliminating the allyl alcohol which is formed as reaction by-product.
9. The composition according to claim 8, wherein the transesterification is carried out at a temperature ranging from 90°C to 130°C, and the catalyst of the
20 alkaline type is selected from: hydroxides, carbonates and alcoholates of alkaline metals, organic bases, basic ion-exchange resins.
10. The composition according to claim 9, wherein the catalyst of the alkaline type is selected from: sodium
25 hydroxide, sodium carbonate, sodium methyllate.

11. The composition according to any of the claims from 8 to 10, wherein the catalyst is used in a quantity equal to at least 1 ppm (parts per million by weight) with respect to the sum of the weights of components (B+C).
12. The composition according to claim 11, wherein the catalyst is used in a quantity ranging from 0.01% to 0.3% by weight with respect to the sum of the weights of components (B+C).
13. The composition according to any of the claims from 8 to 12, wherein the transesterification reaction is carried out at pressure values ranging from 60 mbar to 1030 mbar.
14. The composition according to claim 13, wherein the transesterification reaction is carried out at pressure values ranging from 60 mbar to 500 mbar.
15. The composition according to any of the claims from 8 to 14, wherein the reaction times range from 0.5 hours to 20 hours.
16. The composition according to claim 15, wherein the reaction times range from 0.5 hours to 3 hours.
17. The composition according to any of the previous claims, wherein one or more conventional additives are present, such as oxidization, light and heat stabilizers, lubricants, dyes, pigments, UV-absorbers, IR-

absorbers, and the like, in a total quantity however not exceeding 1 part by weight for every 100 parts by weight of the compositions themselves.

18. The composition according to any of the previous
5 claims, wherein one or more polymerization initiators are present, which are soluble in the composition itself and are capable of generating free radicals within a temperature range of 30°C to 120°C.
19. The composition according to claim 18, wherein the po-
10 lymerization initiators belong to the group of peroxides.
20. The composition according to claim 19, wherein the peroxides are: dicyclohexylperoxydicarbonate, diisopropylperoxydicarbonate, dibenzoylperoxide, di-s-butyl-peroxydicarbonate, s-butyl-cyclohexylperoxydicar-
15 bonate.
21. The composition according to claim 18, wherein the polymerization initiators are perketals.
22. The composition according to claim 21, wherein the
20 perketals are: 1,1-di-(t-butylperoxy)-cyclohexane, 1,1-di-(t-butylperoxy)-3,3,5-trimethyl-cyclohexane, 1,1-di-(t-amyl-peroxy)-cyclohexane, 1,1-di-(t-butylperoxy)-2-methyl-cyclohexane, 1,1-di-(t-amylperoxy)-2-methylcyclohexane.
- 25 23. The composition according to any of the claims from 18

to 22, wherein the quantity of initiator used varies within a range of 1 to 6 parts by weight for every 100 parts by weight of said composition.

24. The composition according to any of the claims from 18
5 to 23, which are transformed into the relative organic glasses operating at a temperature ranging from 30°C to 120°C, with polymerization times which generally range from 1 hour to 100 hours.
25. Organic glasses obtained from the polymerization of
10 the compositions according to any of the previous claims.
26. Ophthalmic lenses and solar filters, protective shields, sight windows, solar and photovoltaic collectors and panels, substrates for optical disks, panels
15 for display, video terminals obtained from the processing of the organic glasses according to claim 25.

20

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 52151	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP99/08388	International filing date (day/month/year) 05/11/1999	Priority date (day/month/year) 06/11/1998
International Patent Classification (IPC) or national classification and IPC C07C69/96		
Applicant GREAT LAKES CHEMICAL (EUROPE) GMBH et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 7 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 23/03/2000	Date of completion of this report 14.02.01
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Kleidermigg, O Telephone No. +49 89 2399 2143 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP99/08388

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

Description, pages:

1-4,6-21 as originally filed

5 as received on 30/10/2000 with letter of 27/10/2000

Claims, No.:

1-25 as received on 30/10/2000 with letter of 27/10/2000

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/08388

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-25
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-25
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-25
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

S ction V

Novelty and Inventive step

The present application relates to a liquid composition which can be polymerized, by means of radical polymerization with low shrinkage, into organic glasses, comprising the product obtained from transesterification of a diallylcarbonate (A) with a mixture of one or more linear or branched aliphatic diols (B), containing from three to ten carbon atoms in the molecule with a linear or branched aliphatic polyol (C), containing from four to twenty carbon atoms and from three to six hydroxyl groups in the molecule, wherein the molar ratio (A)/(B+C) ranges from 2.5/1 to 4/1 and the quantity of (C) in the mixture (B+C) ranges from 5% by weight to 20% by weight with respect to the total weight of said mixture (B+C) (claims 1-22), organic glasses (claim 23), processed organic glasses e.g. ophthalmic lenses (claim 24) and the use of the liquid composition for manufacturing optical lenses (claim 25).

The subject matter of the present application represents a selection over US-A-4 970 293 (D1) which is considered to represent the closest prior art, because the present application proposes a molar ratio (A)/(B+C) ranges from 2.5/1 to 4/1 and a quantity of (C) in the mixture (B+C) ranges from 5% by weight to 20% by weight. In D1 a molar ratio (A)/(B+C) from 3/1 to 12/1 and a quantity of (C) in the mixture (B+C) from 20 to 60% is disclosed (cf. clams 1-4). However, in D1 no explicit examples are given which fall within the scope of present claim 1 (cf. columns 5-11). Moreover, it is considered that presently claimed ranges are narrow with respect to D1 and the obtained products show improved properties with respect to D1.

Thus, the subject matter of present claims 1-25 is fulfilling the criteria of Article 33(2) PCT with respect to the available prior art.

The technical problem may be regarded as the provision of further organic glasses.

The solution is given in claim 1 and concerns the special selection of the molar ratio (A)/(B+C) and the quantity of (C) in the mixture (B+C). This special selection yields organic glasses with a property profile ideal for the as ophthalmic lenses. The improved physico-chemical properties of the selection such as abrasion resistance and yellow

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index, as can be seen in table 1 of the present application (cf. page 18) are in detail not predictable for a person skilled in the art.

Thus, the subject matter of present claims 1-25 is fulfilling the requirements of Article 33(3) PCT with respect to the available prior art.

Section VII

The passage on page 11, lines 3-6 is infringing Rule 9.1 iv) PCT.

The present application is not fulfilling the criteria of Rule 11.9 a) PCT.